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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/536,841

05/31/2005

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NL 021321

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7590

07/09/2008

PHILIPS INTELLECTUAL PROPERTY & STANDARDS

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BRIARCLIFF MANOR, NY 10510

EXAMINER

MA, CALVIN

ART UNIT

PAPER NUMBER

2629

MAIL DATE

DELIVERY MODE

07/09/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/536,841	<b>Applicant(s)</b> GIRALDO ET AL.	
	<b>Examiner</b> CALVIN C. MA	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Bu. (US Patent: 6,433,488)

As to claim 1, Bu discloses a pixel cell (i.e. one unit in the matrix of OLED array) in an active matrix display (i.e. active matrix OLED display) (see Fig. 2, Col. 3, Lines 1-23) comprising:

a current driven emissive element (OLED 1) (see Fig. 2, Col. 3, Lines 4-10),

a data input for receiving an analog data signal (i.e. the reference signal REF)

(see Fig. 2, Col. 3, Lines 25-29),

at least two drive elements (6 and 5), each being connected to a power supply (i.e. the power supply supplies the  $V_s$  and  $V_{pp}$  potential) and arranged to drive the emissive element (1) in accordance with said analog data signal (REF) (i.e. the reference value help adjust the current and create a feedback which drive both the circuit 6 and 5 in order to drive OLED 1) (see Fig. 3, Col. 4, Lines 26-56),

selecting means (2) for selecting, one or more of the at least two drive elements in response to one or more select signals, and for providing said data signal (REF) the selected one or more drive elements (i.e. the circuit 2 selects both of the circuit 5 and 6 in providing the adjusted voltage for the driving of OLED 1 based on the scan signal which does the selecting action) (see Fig 3, Col. 4, Lines 26-60),

wherein each drive element is adapted to drive the emissive element in a different drive current range in response to a given voltage of the analog data signal ( $V_{in}$ ) (i.e. since the circuit 5 is adapted to drive the current in range create by  $V_s$  and circuit 6 adjust the current value by comparing with a reference current value, therefore they are different drive current range,  $IDRV$  and  $IREF$ ) (see Fig. 2, Col. 3, Lines 25-63).

As to claim 7, Bu teaches a display device (i.e. OLED matrix display), comprising:

a plurality of pixel cells (i.e. the a matrix of OLED) (see Col. 3, Lines 1-24),

a current driven emissive element (OLED),

a data input for receiving an analog data signal (REF),

at least two drive elements (circuit 5 and 6), each being connected to a power supply (i.e. power supply for the circuit) (see Fig. 2, Col. 3, Lines 16-23) and arranged to drive the emissive element in accordance with said analog data signal (i.e. the REF reference value control the adjustment of current for the OLED and therefore drives it) (see Fig. 3, Col. 4, Lines 26-56),

selecting means (2) for selecting, one or more of the at least two drive elements in response to one or more select signals, and for providing said data signal (REF) the selected one or more drive elements (i.e. the circuit 2 selects both of the circuit 5 and 6 in providing the adjusted voltage for the driving of OLED 1 based on the scan signal which does the selecting action) (see Fig 3, Col. 4, Lines 26-60),

wherein each drive element is adapted to drive the emissive element in a different drive current range in response to a given voltage of the analog data signal ( $V_{in}$ ) (i.e. since the circuit 5 is adapted to drive the current in range create by  $V_s$  and circuit 6 adjust the current value by comparing with a reference current value, therefore they are different drive current range,  $IDRV$  and  $IREF$ ) (see Fig. 2, Col. 3, Lines 25-63).and

a controller (i.e. the controller is the REF circuit composed of by P1 and P2 forming a current mirror) arranged to receive an analog video signal (i.e. the reference current signal), belonging to a first voltage range ( $V_{pp}$ ), to generate the analog data signal (reference signal REF) belonging to a second, more narrow voltage range (i.e. the more narrow voltage range is the adjusted range  $V_{fb}$  for feed back), and to associate said analog data signal (REF) with a select signal indicating a desired drive

current range (i.e. the feed back adjust the current range to one that is closer to the reference current range) (see Fig. 2, 3, Col. 3, Lines 1-64); and

means (i.e. the display panel having control lines that feed the necessary control signal such as scan signal 3 and current REF to the individual unit of the OLED pixel) for providing said analog data signal (REF) and said select signal (Scan signal 3) to one of said pixel cells (i.e. one of the unite of OLED matrix circuit) (see Fig. 2, Col. 3, Lines 1-35).

As to claim 9, Bu teaches a method for driving a pixel cell (OLED cell) comprising an emissive element (1 OLED) and at least two drive elements (circuit 5 and 6) for driving the emissive element, each drive element being adapted to drive the emissive element in a different drive current range in response to a given data signal (current REF) (i.e. the circuit 5 has driving current range while the circuit 6 provide adjusted current by mirroring a reference current) (see Fig. 2, Col. 3, Lines 1-64) said method comprising:

based on an analog video signal belonging to a first voltage range (i.e. the driving current of the OLED is created from the original input which is a video signal since the OLED matrix is active which constantly update the voltage creating a video display) (see Fig. 2, Col. 3, Lines 1-24), generating a data signal (REF) belonging to a second, more narrow voltage range (i.e. the reference current mirroring of circuit 5 creates a new voltage  $V_{fd}$  which is a more narrow voltage range as it is adjusted according to a set reference value) (see Fig. 2, Col. 3, Lines 1-35), and

associating said analog data signal with one or more select signals indicating a desired drive current range, and, in response to the one or more select signal, providing said analog data signal (REF) to a selected one or more of the drive elements in the pixel cell to drive the emissive element in the desired drive current range (i.e. the REF value and the scan signal are coordinated to create a properly adjusted current for the OLED 1 and therefore the both circuit 5 and 6 is selected to create the proper current values) (see Fig. 2, Col. 3, Lines 1-64).

As to claim 2, Bu teaches a pixel cell according to claim 1, wherein said selecting means comprises at least two switches (i.e. switch 54 and 53), each arranged to be provided with a separate one of the select signals (i.e. the two switch as inverted input and therefore has separate input of the select signal 3), said select signals determining the drive current range resulting from a given data signal (REF) (i.e. the two switch are necessary for the proper loading for the current feedback from 6 and thereby creating an adjusted current value for OLED 1) (see Fig. 2, Col. 3, Lines 1-64).

As to claim 3, Bu teaches a pixel cell according to claim 2, wherein, during a frame period (i.e. the frame period is the period in which the pixel is activated by the matrix), each switch is arranged to receive a select signal which is set either ON or OFF and in response (i.e. the scan signal 3 is a digital signal and there fore must by either ON or OFF) thereto, when the select signal is ON the switch causes a corresponding one of the drive elements to drive the emissive element, and when the select signal is

OFF, the switch causes the corresponding drive element to not drive the emissive element (i.e. since both of the switch correspond to circuit 5 they activate the OLED according to the control of the scan signal) (see Fig. 2, Col. 3, Lines 1-64).

As to claim 4, Bu teaches a pixel cell according to claim 2, wherein during a frame period (i.e. the frame period is the period in which the pixel is activated by the matrix), each switch is arranged to receive a select signal which is alternately ON and OFF, and wherein said data signal (REF) is enabled only during a portion of the frame period, and wherein when the select signal is ON the switch causes a corresponding one of the drive elements to drive the emissive element, and when the select signal is OFF, the switch causes the corresponding drive element to not drive the emissive element (i.e. since in a active matrix the scanning is sequential for the entire display the scan signal must be intermittent for each of the pixel during a period of a frame, this means that the reference REF signal is only in an intermittent fashion and since both switch activate by the scan signal 3 they are affected by the ON and OFF state and drives the OLED 1 accordingly) (see Fig. 2, Col. 3, Lines 1-64).

As to claim 5, Bu teaches a pixel cell according to claim 1, where the drive elements (5 and 6) comprise transistors having different transistor channel dimensions (i.e. since the transistors in circuit 5 and 6 are located differently where 6 has four p-type and three n-type and 5 only have 2, the channel dimensions must be different to accommodate the structural requirement of the specific layout) (see Fig. 3, Col. 4, Lines



25-67).

As to claim 6, Bu teaches a pixel cell according to claim 1, where the current driven emissive element is an organic LED (OLED) (see Fig. 2, Col. 3, Lines 1-20).

As to claims 8 and 10 Bu teaches said first voltage range comprises voltages which are closer to threshold voltages of the pixel cell drive elements than any voltages in said second voltage range (i.e. the threshold voltages of the pixel cell is the IDRV which is feed into the comparator and this current is changed according to the reference current therefore the range of the first voltage will be closer then the range of the second voltage since it does not has the change that is applied by the comparator circuit 6) (see Fig. 2, Col. 3, Lines 24-64).

As to claim 11, Bu teaches a method according to claim 9, wherein said one or more select signals comprise at least two select signals each connected to a separate switch (i.e. the circuit having both scan signal line 3 and data signal line 4 control) (see Fig. 2).

As to claim 12, Bu teaches a method according to claim 9, wherein, during a frame period (i.e. the frame period is the period in which the pixel is activated by the matrix), each select signal is set either ON or OFF (i.e. since the control lines are digital

it must be either ON or OFF) (see Fig. 2, Col. 3, Lines 1-24).

As to claim 13, Bu teaches a method according to claim 9, wherein, during a frame period (i.e. the frame period is the period in which the pixel is activated by the matrix), each select signal only is set ON during a portion of the frame period, and said data signal (REF) only is enabled during a portion of the frame period (i.e. since in a active matrix the scanning is sequential for the entire display the scan signal must be intermittent for each of the pixel during a period of a frame, this means that the reference REF signal is only in an intermittent fashion and since both switch activate by the scan signal 3 they are affected by the ON and OFF state and drives the OLED 1 accordingly) (see Fig. 2, Col. 3, Lines 1-64).

As to claims 14 and 17, Bu teaches each drive element is directly connected to the power supply (i.e. the circuit 5 and 6 are directly connected to power supply via the voltage input Vs and Vpp) (see Fig. 3).

As to claims 15, 18 and 20, Bu when the analog data signal having a first voltage is provided to a first one of the drive elements (6) and said first drive element is selected to drive the emissive element (1), a brightness of the emissive element is greater than when the analog data signal having the first voltage is provided to a second one of the drive elements (5) and said second drive element is selected to drive the emissive element (i.e. since the current comparator compares the current DRV and REF, when

the analog signal REF is higher than the current drive from circuit 5, the current mirror circuit in comparator 6 will output a compensatory voltage  $V_{fb}$  that is set higher, and therefore the emissive element is set to a higher level than would have been the case with only the drive circuit 5 operating and the emissive element is set brighter) (see Fig. 2-3, Col. 4, Lines 1-25).

As to claim 16 and 19, Bu teaches when the one or more select signals have a first state (i.e. the state where the analog REF current signal is set equal to the current driving current of the circuit 5), the selecting means selects only a first one of the drive elements to drive the emissive element, and when the one or more select signals have a second state (i.e. the state where the analog REF current signal is set different from the driving current DRV), the selecting means selects only a second one of the drive elements to drive the emissive element (i.e. when the current is the same the comparator circuit 6 does not drive the emissive since the compensatory  $V_{fb}$  is not present, when the current are not the same than the compensatory  $V_{fb}$  help drive the emissive element 1 by setting to compensate the current level for the device) (see Fig. 2-3, Col. 4, Lines 1-25).

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

### ***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Calvin Ma whose telephone number is (571) 270-1713. The examiner can normally be reached on Monday - Friday 7:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on (571) 272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Calvin Ma  
July 3, 2008

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